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CLEAN VERSION OF PENDING CLAIMS

PACKAGING OF ELECTRONIC CHIPS WITH AIR-BRIDGE STRUCTURES

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Claims 1-6, 8-10, 12, 14, 18-23, 31-35, and 38-46, as of September 16, 2002 (Date of Response to First Office Action).

1. An integrated circuit assembly comprising:
an electronic chip; and
a conductive structure embedded in a material layer having a plurality of vaporization temperatures, the material layer is formed on the electronic chip and the conductive structure is coupled to the electronic chip.
2. The integrated circuit assembly of claim 1, wherein the electronic chip is a memory chip.
3. The integrated circuit assembly of claim 2, wherein the memory chip is a dynamic random access memory chip.
4. The integrated circuit assembly of claim 1, wherein the conductive structure is fabricated from copper.
5. The integrated circuit assembly of claim 1, wherein at least one of the plurality of vaporization temperatures is about 400 degrees centigrade.
6. An integrated circuit assembly comprising:
an electronic chip; and
a conductive structure embedded in a plurality of materials, each of the plurality of materials having a different vaporization temperature, the plurality of materials is formed on the

electronic chip and the conductive structure is coupled to the electronic chip.

8. The integrated circuit assembly of claim 6, wherein at least one of the plurality of materials is silicon dioxide.
9. The integrated circuit assembly of claim 6, wherein at least one of the plurality of materials is carbon.
10. An integrated circuit assembly comprising:
 - an electronic chip; and
 - a conductive structure embedded in a material layer having a structural component having a structural vaporization temperature and a non-structural component having a non-structural vaporization temperature less than the structural vaporization temperature, the material layer is formed on the electronic chip and the conductive structure is coupled to the electronic chip.
12. The integrated circuit assembly of claim 10, wherein the structural component is fabricated from silicon dioxide.
14. The integrated circuit assembly of claim 10, wherein the non-structural component is fabricated from carbon.
18. An integrated circuit assembly comprising:
 - an electronic chip;
 - a support structure mounted on the electronic chip, the support structure having an interstice and a vaporization temperature;
 - a material filling the interstice, the material having a vaporization temperature that is less than the vaporization temperature of the support structure;

a connective structure mounted on the support structure; and
a conductive structure capable of coupling the electronic chip to the connective structure,
the conductive structure embedded in the support structure and the material.

19. The integrated circuit assembly of claim 18, wherein the electronic chip is a dynamic random access memory chip.

20. The integrated circuit assembly of claim 18, wherein the support structure is fabricated from silicon dioxide.

21. The integrated circuit assembly of claim 18, wherein the support structure is a ribbed structure.

C1 22. (Amended) The integrated circuit assembly of claim 18, wherein the material is carbon.

23. The integrated circuit assembly of claim 18, wherein the connective structure is a controlled collapse chip connection (C4) structure.

31. An integrated circuit assembly comprising:
an electronic chip; and
a post structure mounted on the electronic chip and capable of protecting an air-bridge structure and supporting a C4 structure.

C2 32. (Amended) The integrated circuit assembly of claim 31, wherein the post structure is fabricated from carbon.

33. The integrated circuit assembly of claim 31, wherein the post structure is mounted on an insulating base formed on the electronic chip.

34. The integrated circuit assembly of claim 31, wherein the post structure is fabricated from an insulator.

C3 35. (Amended) The integrated circuit assembly of claim 34, wherein the insulator is silicon dioxide.

38. An integrated circuit assembly comprising:
an electronic chip including a plurality of electronic devices;
a plurality of conductive segments capable of interconnecting the plurality of electronic devices, each of the plurality of conductive segments having a surface area in contact with a material having a dielectric constant of about 1;
a C4 connection coupled to the electronic chip through the plurality of conductive segments; and
a substrate coupled to the C4 connection.

39. The integrated circuit assembly of claim 38, wherein the integrated circuit assembly is hermetically sealed.

40. The integrated circuit assembly of claim 39, wherein the integrated circuit assembly is back filled with helium.

41. The integrated circuit assembly of claim 39, wherein the integrated circuit assembly is back filled with a helium rich gas mixture.

- 42. The integrated circuit assembly of claim 38, wherein the material is air.
- 43. The integrated circuit assembly of claim 38, wherein the material is a foam.
- 44. The integrated circuit assembly of claim 38, further comprising a heat sink coupled to the electronic chip.
- 45. The integrated circuit assembly of claim 44, wherein the integrated circuit assembly is hermetically sealed.
- 46. The integrated circuit assembly of claim 45, wherein the integrated circuit assembly is back filled with helium.